From Drought To Flood

Randolph CEs battle one crisis, then another

by MSgt Luis A. Adams, 12th CES

(From top to bottom) **The pit of well number 1 on Aug 4, 2001. This is where Randolph's water contamination problems began.** ***(Photo by A.C. Thomas)*** **SrA Shaun Ballor, 37th CES equipment operator, stands by as emergency repairs are made to Randolph's water lines.** ***(Photo by CMSgt Kenneth Thomas)*** **TSgt Duane Cruz** ***(left)*****, 12th CES, and TSgt David Riggs, 37th CES, repair a section of broken pipe.** ***(Photo by CMSgt Ercilia Ramos)***

Water problems made for an interesting summer for those who live, work and play at Randolph Air Force Base, TX. It all started with a long dry spell — not too unusual for Texas in July. Then a mystery substance contaminated one of Randolph's wells, beginning a two-week ordeal that came to an end only for base residents to be propelled into another in a matter of weeks. As a result, people who habitually used base water no longer trusted what they were drinking and quickly turned to civil engineers and base authorities for relief.

Don't Drink the Water

On Thursday, Aug. 2, base residents swamped the 12th Civil Engineer Squadron's service desk with calls. TSgt Charles Lineberry, 12th CES General Officer Quarters manager, was one of the first to call in and inform the controller about a "strong smell of fuel and a black, gooey substance seeping out of kitchen and bathroom faucets." Something had contaminated the water supply system at Randolph, which employs about 12,000 people and is home to almost 2,700.

Lt Col Allen J. Benefield, 12th CES commander, and Maj Greg Williams, 12th CES operations chief, quickly assessed the situation and implemented the squadron's emergency contingency plans. Unit Control Center standup was initiated, and a 12th Flying Training Wing-wide emergency contingency plan went into effect, closing the base to all but mission-essential personnel. The main water supply was cut off, leaving base residents dependent on bottled water for everything from cooking to toilet flushing, and training flights suspended, silencing the base's two active runways for the first time in memory.

An overwhelming influx of support from retired military, neighboring Air Force bases and the local community helped CE with the monumental task of isolating the problem, identifying the needs of the base community and repairing the countless number of broken water mains which eventually trailed the exhaustive recovery efforts.

The syrupy, crude oil-like substance in the water appeared to be coming from a 75-year-old well in the Edwards Aquifer. The well supplies distribution lines that primarily feed the Wherry housing complex (which is home to many junior enlisted families), the area that received most of the contaminated water. The Edwards Aquifer Authority sampled the base's water supply Friday and determined that none of Randolph's four other on-base wells or nearby off-base wells showed petroleum contamination.

By Saturday, base officials gave the go-ahead to restore water service to 659 housing units, excluding the 360 Wherry units near the contaminated well.

In the meantime, Mr. Bob Louthen, 12th CES infrastructure chief, and Mr. Roger Kiker, 12th CES energy manager, had developed a preliminary comprehensive strategy to systematically isolate and flush the water towers, primary lines and water mains. Mr. Robert Still, 12th CES lead plumber, and Mr. Larry Kosub, 12th CES plumber, various 12th CES craftsmen, and SrA David Shinn and SSgt Jeramie White, both plumbers from the 37th CES at nearby Lackland AFB, led the charge to manipulate more than 500 valves on a 400,000-foot water system in the course of a few days. Not surprisingly, there were weak areas in the system that created problems when the water flow increased.

When several water mains burst early Sunday, base water service was once again shut down; this time to repair the broken pipes. The local community responded with gyms, high schools and fire departments providing use of their showers, and local hotels offering discounted rates with no tax for Randolph housing residents.

Randolph's water system is made up of 40- and 50-year-old pipes, as previously identified through the Recurring Maintenance Program, that threatened a quick recovery by cracking, leaking and ultimately breaking. This led to a concerted effort to repair 10 water main breaks and replace more than 10,000 feet of pipe in a

72-hour span. Augmented with repair teams from the 37th CES, the 307th RED HORSE Squadron and San Antonio Water System, members of the 12th CES and the base's contracting squadron worked around the clock to finalize the scope of work and award emergency repairs via "letter contract."

Meanwhile, 12th CES firefighters coordinated a source of potable water for water buffalos with the local city fire department via their mutual aid agreement. They also arranged to connect to the municipal water system with 1,000 feet of 5-inch hose to supplement system pressure. CE members tapped experts at the Air Force Institute for Environment, Safety and Occupational Health Risk Analysis and the Air Force Center for Environmental Excellence for advice early, as the sophisticated science of groundwater, aquifer and wells quickly exceeded local CE expertise.

The efforts and coordination of several base agencies and support units in and around Randolph were needed for purchase, delivery and 24-hour distribution of more than 20,000 gallons of drinking water per day. This, along with the rental and strategic placement of more than 300 portable toilets, authorized off-base accommodations and free, chapel-sponsored lunches helped put Randolph AFB on the road to recovery.

When the base reopened the following Tuesday, potable water was still being trucked in since the contaminant, and how it got into the well, remained a mystery. Non-potable water was restored late Tuesday after tests showed it was suitable for non-drinking purposes.

State environmental officials eventually declared Randolph's water safe for human consumption on Aug. 15, ending a two-week period during the hottest month of the year in which base personnel had to keep a jug of water nearby to wash their hands, brush their teeth or mix a glass of tea.

"Three independent laboratories analyzed the water contamination source, and the chemical analysis results were the same from all three labs," said Anthony Martinez, 12th CES Environmental Flight chief. "A geological study in September found that the water contamination was naturally occurring crude. Because this was a geological study and used previous findings to assist in its conclusion, we think this is the most plausible answer." Martinez said the source of the contamination is believed to be highly degraded naturally occurring crude oil that originated either in the Austin Chalk or Edwards rock formations. The base is still working with the Texas Natural Resource Conservation Commission in determining the origin of the contaminate.

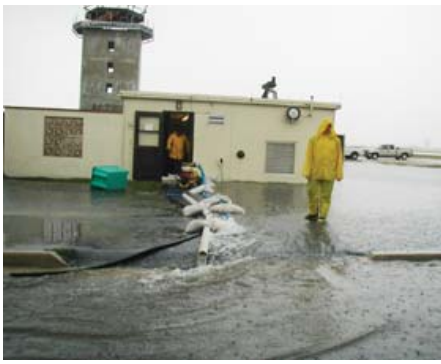
What's being done to prevent another water contamination crisis? One of the major lessons learned from the Randolph AFB water crisis was to install sensoring and monitoring devices in the wells that would detect impurities in the water system immediately, alert water plant operators, and automatically shut down the contaminated well.

When it rains, it pours

After a one-week reprieve from the water crisis, Mother Nature decided to "show up and show out" with a storm that brought torrential rains and once again challenged the Randolph community.

As record levels of rain fell, roads on base began to flood and snarl traffic. When the clouds cleared, several facilities on base were flooded. The 12th CES pumped more than 100,000 gallons of water from the basement of two critical (West Airfield Vault and Headquarters Military Personnel Center) and three mission-essential facilities. They cleared tree limbs and debris off 5 miles of road throughout Randolph and used forklifts and front-end loaders to place more than 110 sandbags in high flood areas. They located 10 dumpsters and positioned several jersey bouncers to assist security forces in controlling and directing traffic both in and out of the base and away from flooded roads.

"The CE and Wing teams did an awesome job during both crises," said Lt Col Benefield, "They came together and got the job done."



(From top to bottom)* Approximately 3 feet of water stood in the basement of Randolph's west airfield vault when the top photo was taken and 4 feet when the second photo was taken. David Washington *(in doorway)* and SrA Andrew Diehl, both from the 12th CES, at the vault. Approximately 30,000 gallons was pumped out of the basement that day. *(Photos by MSgt Luis A. Adams)

SrA Victor Ramon *(right)* and Justin Gardner, 37th CES, cut a water main in preparation for repairs at Randolph AFB. *(Photo by Jennifer Valentin)*

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